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Furey et al.

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(54) **DISPENSING DEVICE AND METHOD FOR DELIVERING FILAMENTARY MATERIAL INTO A PATIENT**

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(56) **References Cited**

U.S. PATENT DOCUMENTS

5,021,059 A 6/1991 Kensey et al.
5,263,927 A 11/1993 Shlain
(Continued)

FOREIGN PATENT DOCUMENTS

EP 0743047 A2 11/1996
EP 2 361 567 A1 8/2011
(Continued)

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(57) **ABSTRACT**

There are disclosed various dispensing mechanisms for dispensing filamentary material (24) through a catheter (12) into a treatment site of a patient, for example into an aneurysm sack (20) in a patient's vessel (22). In one embodiment the assembly (100) includes a conical material carrier (150) which is substantially aligned with the dispensing direction, thereby avoiding the need to have a rotating carrier. Another embodiment has a carrier (340) which is at least partially cylindrical. The carrier (150, 340) provides for efficient dispensation of filamentary material at substantial dispensing speeds.

42 Claims, 9 Drawing Sheets

